

IN THE CLAIMS:

Please cancel Claims 3, 4, 6, 7, 9, 12, 18 and 20 without prejudice to or disclaimer of the subject matter presented therein.

Please amend Claims 1, 2, 5, 8, 10, 11 and 19 as follows.

1. (Currently Amended) A human eye detection method comprising the following steps:

- a) ~~Reading-in~~inputting an image;
 - b) ~~Analyzing~~analyzing the image and getting a ~~list of~~ candidate eye ~~areas~~area;
 - c) ~~selecting one unverified candidate eye area from said list;~~
 - d) determining a neighborhood region in the image of the ~~selected~~ candidate eye area, said neighborhood region being a region encompassing the candidate eye area;
 - e) calculating the neighborhood region's size, which is recorded as S;
 - f) ~~proeessing the region, obtaining dark areas;~~
 - g) detecting dark areas in the neighborhood region and counting the number of dark areas, which number is recorded as N; and
 - h) comparing the ratio N/S to a predetermined first threshold; if the ratio N/S is smaller than said first threshold, the candidate eye area is determined as judged to be a real eye area ~~and remains in the list~~; else, the candidate eye area is determined as judged to be a false eye area ~~and deleted from the list~~;
 - i) ~~repeating steps c) to h) until there is no unverified candidate eye area in the list;~~
- and
- j) ~~outputting the list for purpose of subsequent processing of the image.~~

2. (Currently Amended) The human eye detection method according to claim 1, characterized in that the method further comprises ~~steps~~the step of:

determining candidate face areas on the basis of ~~remnant~~said judged candidate eye areas area obtained from said step jf);

~~deleting false face areas;~~

~~outputting the remnant face areas for subsequent processing.~~

3-4. (Canceled)

5. (Currently Amended) The human eye detection method according to ~~any of~~
~~claims claim 1 to 3~~or 2, characterized in that, ~~in step f_e)~~, ~~the dark areas are determined in the~~
~~same way as that used in step b)~~executes a binarization processing for detecting the dark areas.

6-7. (Canceled)

8. (Currently Amended) The human eye detection method according to ~~any of~~
~~claims claim 1 to 3~~or 2, further comprising a threshold calculating step before the step h_f), for
calculating said first threshold.

9. (Canceled)

10. (Currently Amended) The human eye detection method according to claim 9, characterized in that the first threshold is 0.045 A human eye detection apparatus comprising:
an input unit that inputs an image; and
a processor that (i) analyzes the image to obtain a candidate eye area; (ii) determines a neighborhood region in the image of the candidate eye area, the neighborhood region being a region encompassing the candidate eye area, (iii) calculates the neighborhood region's size S, (iv) detects dark areas in the neighborhood region and determines the total count N of dark areas in the neighborhood region, (v) and compares the ratio N/S to a predetermined first threshold, wherein if the ratio N/S is smaller than the first threshold, the candidate eye area is judged to be a real eye area, else the candidate eye area is judged to be a false eye area.

11. (Currently Amended) A human eye detection apparatus according to Claim 10, wherein said processor executes a binarization processing to detect the dark areas, (500) comprising: reading means (504) for reading in an image; candidate detection means (506) for analyzing the reading image and getting a list of candidate eye areas; and output means (512) for outputting the list for purpose of subsequent processing of the image; characterized in that, the apparatus further comprises selecting means (507) for selecting one candidate eye area to be verified from the list, verifying means (508) for determining whether said one candidate eye area is a true eye area, and outputting the result; and controlling means (510) for controlling the selecting means so that all the candidate eye areas in the list are verified; the verifying means (508) further including:

neighborhood region determining means (604) for determining a neighborhood region for the candidate eye area;

calculating means (608) for calculating the region's size, which is recorded as S;

dark-area-determining means (610) for processing the region and obtaining dark areas;

counting means (612) for counting the number of dark areas, which number is recorded as N; and

comparing means (614) for comparing the ratio N/S to a predetermined first threshold; if the ratio N/S is smaller than said first threshold, the candidate eye area is determined as a real eye area and remains in the list; else, the candidate eye area is determined as a false eye area and deleted from the list.

12-18. (Canceled)

19. (Currently Amended) A computer-readable storage medium embodying having human-eye-detection-program-codes-stored-therein, said human-eye-detection-program codes for causing an apparatus to perform a human eye detection method comprising:

inputting an image;

analyzing the image and getting a candidate eye area;

determining a neighborhood region in the image of the candidate eye area, the neighborhood region being a region encompassing the candidate eye area;

calculating the neighborhood region's size, which is recorded as S;

detecting dark areas in the neighborhood region and counting the number of dark areas, which number is recorded as N; and

comparing the ratio N/S to a predetermined first threshold, wherein if the ratio N/S is smaller than the first threshold, the candidate eye area is judged to be a real eye area, else the candidate eye area is judged to be a false eye area.

reading codes for reading in an image;

candidate detection codes for analyzing the reading image and getting a list of candidate eye areas;

selecting codes for selecting one candidate eye area to be verified from the list;

neighborhood region determining codes for determining a neighborhood region for the candidate eye area;

calculating codes for calculating the region's size, which is recorded as S ;

dark area determining codes for processing the region and obtaining dark areas;

counting codes for counting the number of dark areas, which number is recorded as N ;

comparing codes for comparing the ratio N/S to a predetermined first threshold; if the ratio N/S is smaller than said first threshold, the candidate eye area is determined as a real eye area and remains in the list; else, the candidate eye area is determined as a false eye area and deleted from the list;

controlling codes for controlling the selecting codes so that all the candidate eye areas in the list are verified; and

output codes for outputting the list for purpose of subsequent processing of the image.

20. (Canceled)